OPERATING SUMMARY

EGANVILLE

1972

Ontario

Ministry of the
Environment

135 St. Clair Avenue West
Toronto 195, Ontario

We are pleased to present you with the 1972 operating summary for the water pollution control plant and water supply system serving your community.

This summary contains data on the performance of the plants as well as relevant financial information. Of particular interest is the review of the year's activities in which significant items of these data are discussed in some detail by the operations engineer and his staff who, through their day-to-day involvement with the operation, are thoroughly familiar with the plants.

We appreciate your continuing interest in protecting both the environment through efficient operation of the wastewater treatment facility and the well-being of the community through the provision of an adequate supply of safe potable water.

D.S. Caverly,
Assistant Deputy Minister.

D.A. McTavish, P. Eng.,
Director,
Project Operations Branch.

asnp

MINISTRY OF THE ENVIRONMENT

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J. Dick

135 St. Clair Avenue West
Toronto 195

EGANVILLE

WATER POLLUTION CONTROL PLANT

and

WATER SUPPLY SYSTEM

MINISTRY OF THE ENVIRONMENT

1972 ANNUAL OPERATING SUMMARY

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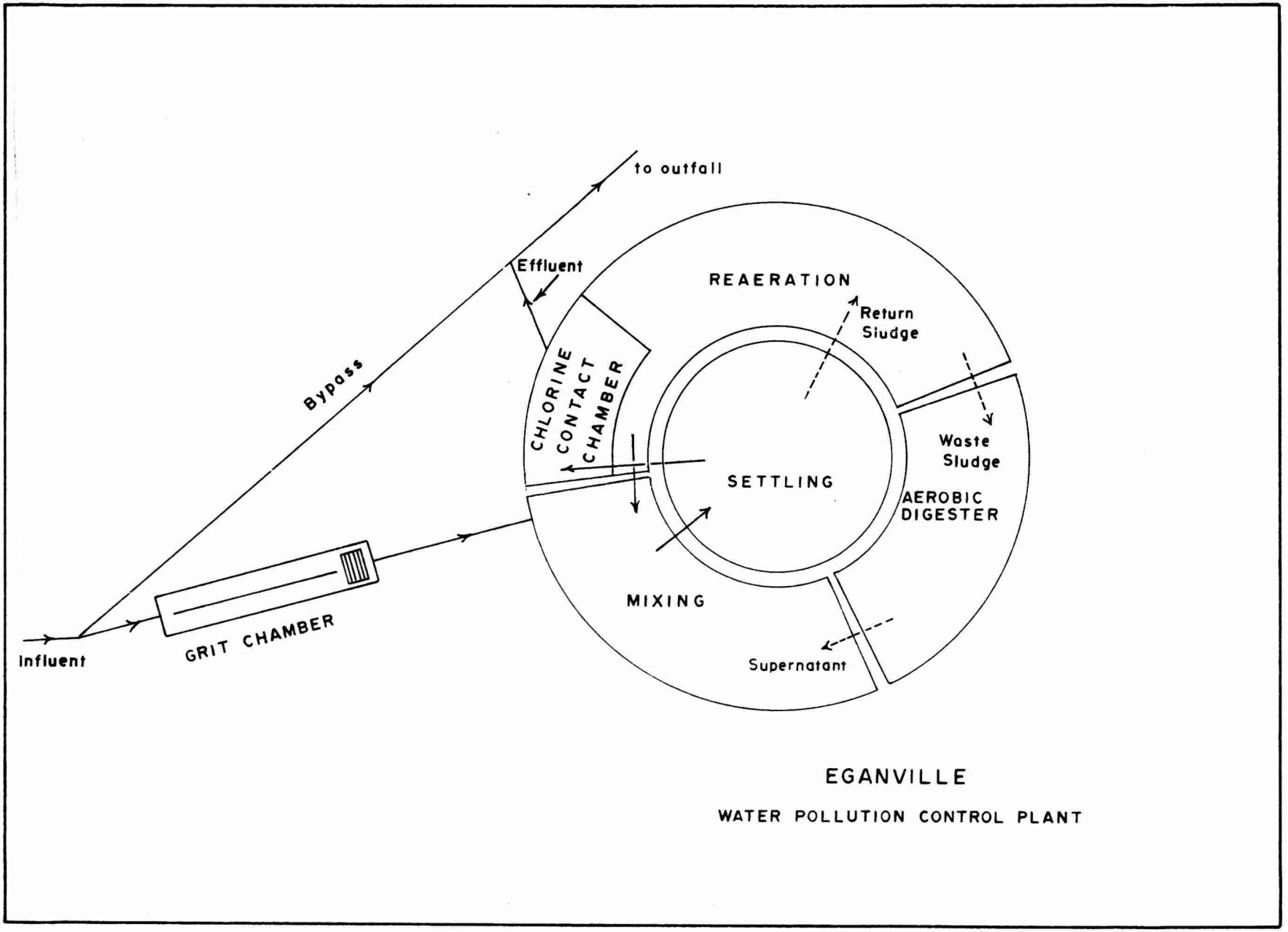


EGANVILLE

WATER POLLUTION CONTROL PLANT

WATER POLLUTION CONTROL PLANT

DESIGN DATA

PROJECT NO. 1-0007-66

TREATMENT Extended Aeration

DESIGN FLOW 0.168 migd

BOD - Raw Sewage
- Domestic 182 mg/l
- Creamery 154 mg/l

Removal 80%

PRIMARY TREATMENT

Grit Removal

Type: Parallel channels, manually cleaned
Size: Two 17'4" x 1'2"

SCREENING

Type: Manually cleaned
Size: $1\frac{1}{4}$" openings

COMMINUTION

Type: Aer-o-Flow Type A-12

SECONDARY TREATMENT

Aeration Tanks

Type: Diffused air
Size: 83,400 gal
Retention: 12 hours

Air Supply

Type: Dresser type RAI
Size: Three-340 scfm @ 7 psi

SECONDARY SEDIMENTATION

Size: 25'8" dia x 15' (37,500 gal)
Retention: 5.3 hours
Loading: Surface 388 gal/ft^2/day
Weir: 1170 gal/ft/day

CHLORINATION

Type: Wallace & Tiernan Type 831
Size: 20 lbs/day

Chlorine Contact Chamber

Size: 3900 gal
Retention: 30 minutes

OUTFALL

OUTFALL

- to Bonnechere River

SLUDGE HANDLING

Digestion System

Type: Aerobic
Size: 56,000 gal

PUMPING STATIONS

North Side

Two Flygt Model CP-3100, 350 US gpm @ 35' TDH

Water Street

Two Flygt Model CP-3100, 150 US gpm @ 25' TDH

'72 Review

GENERAL - Sewage

This project encompasses a secondary sewage plant consisting of an extended aeration-contact stabilization package treatment plant, two pumping stations, trunk sewers and collector sewer systems.

During the past year, five new sewer services were installed, two existing sewer services were extended; and several sewer mains and sewer service connections repaired.

The total flowmeter was repaired and calibrated. Diffusers in the digester were replaced. The skimmer arm on the clarifier was bent and broken due to ice build up. This was modified and repaired.

Discharges from the Eganville Creamery have been causing process problems at the plant. This was being investigated by the Ministry's Research Branch.

EXPENDITURES

The total operating costs for the sewage system for 1972 was $29,388.24. The cost of treating 1 million gallons of sewage was $686.84.

PLANT FLOWS AND CHLORINATION

The actual quantity of sewage treated was 42,979,300 gallons. This flow exceeded the volume of water pumped to the water distribution system.

An average of 168 pounds of chlorine was used per month to disinfect the plant effluent.

PLANT EFFICIENCY

The average concentrations of BOD and suspended solids in the plant influent were 1420 mg/l and 780 mg/l respectively. The average concentration of BOD and suspended solids in the effluent were 6 mg/l and 21 mg/l respectively. The average percent reductions in BOD and suspended solids were 99 and 99 percent respectively. These efficiencies are extremely good and are well within the Ministry's objectives.

SLUDGE DIGESTION

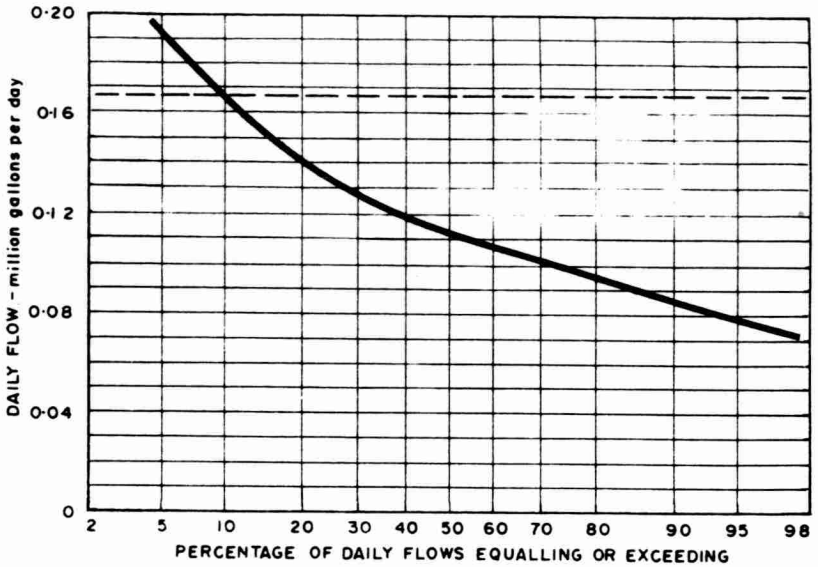
A total of 2332 cubic yards of waste sludge was removed from the sewage treatment plant and disposed of at the sludge disposal site.

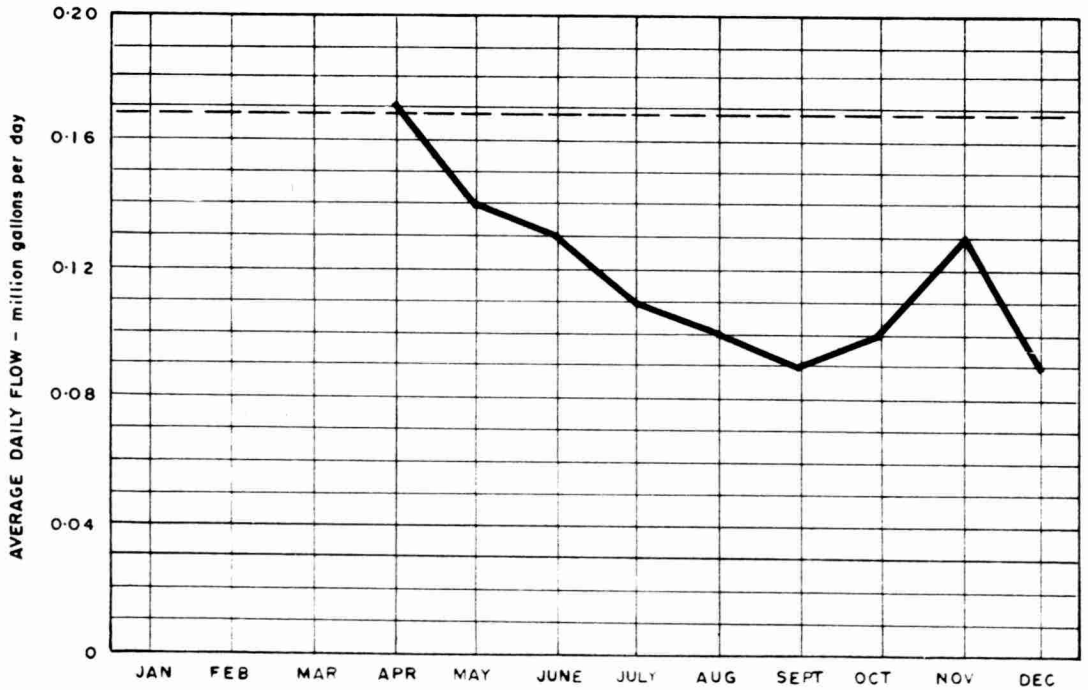
CONCLUSIONS

The operation of the water pollution control plant was satisfactory in 1972.

PROCESS DATA

FLOWS



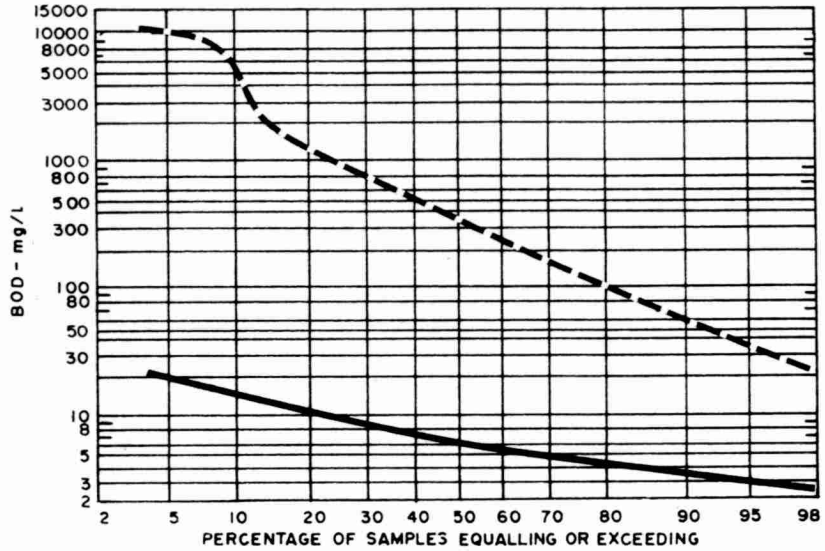


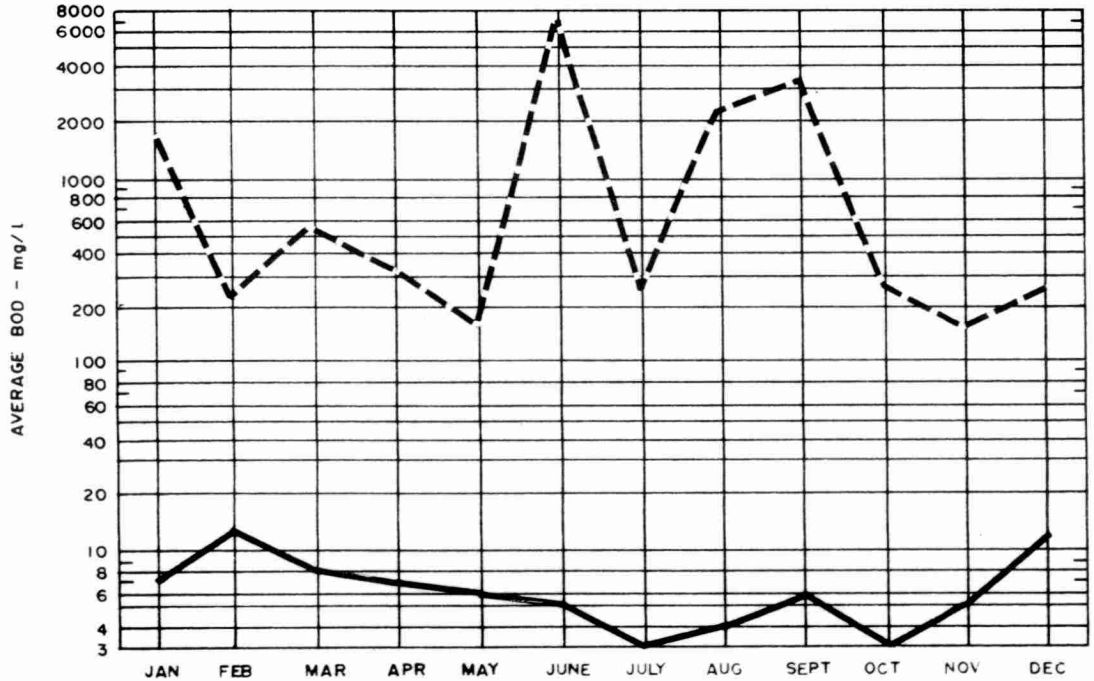
DESIGN CAPACITY _ _ _ _ _ _ _

PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10^3 pounds	mg/l	mg/l	%	10^3 pounds	mg/l P	mg/l P
JAN				1890	7	99+		1010	10	99		20.2	3.2
FEB				220	13	94		120	20	83		30.2	6.2
MAR				550	8	99		200	5	98		10.7	12.0
APR	5.20	.17	.24	340	7	98	17	210	8	96	10	7.7	6.1
MAY	4.43	.14	.20	150	6	96	6	200	10	95	8	7.6	6.7
JUNE	3.78	.13	.18	7170	5	99+	271	1160	10	99+	44	13.3	6.6
JULY	3.28	.11	.15	280	3	99	9	120	10	92	4	13.0	8.5
AUG	3.04	.10	.11	2130	4	99+	64	1330	8	99	40	11.7	3.5
SEPT	2.81	.09	.12	3500	6	99+	98	4320	10	99+	121	14.0	4.2
OCT	3.26	.10	.14	290	3	99	9	300	13	96	9	9.3	7.3
NOV	3.78	.13	.18	150	5	97	5	100	15	86	3	5.9	5.7
DEC	2.89	.09	.12	260	11	96	7	150	10	93	4	8.4	6.9
TOTAL		-	-	-	-	-		-	-	-		-	-
AVG.		.12	MAXIMUM .24	1420	6	99+	54	780	11	99	27	16.7	6.0
No. of Samples	-	-	-	54	20	-	-	54	20	-	-	50	19

BIOCHEMICAL OXYGEN DEMAND

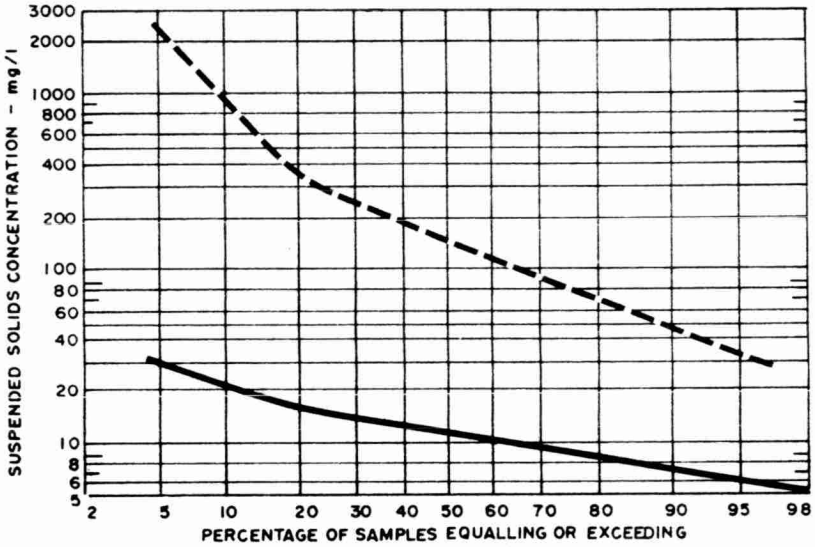


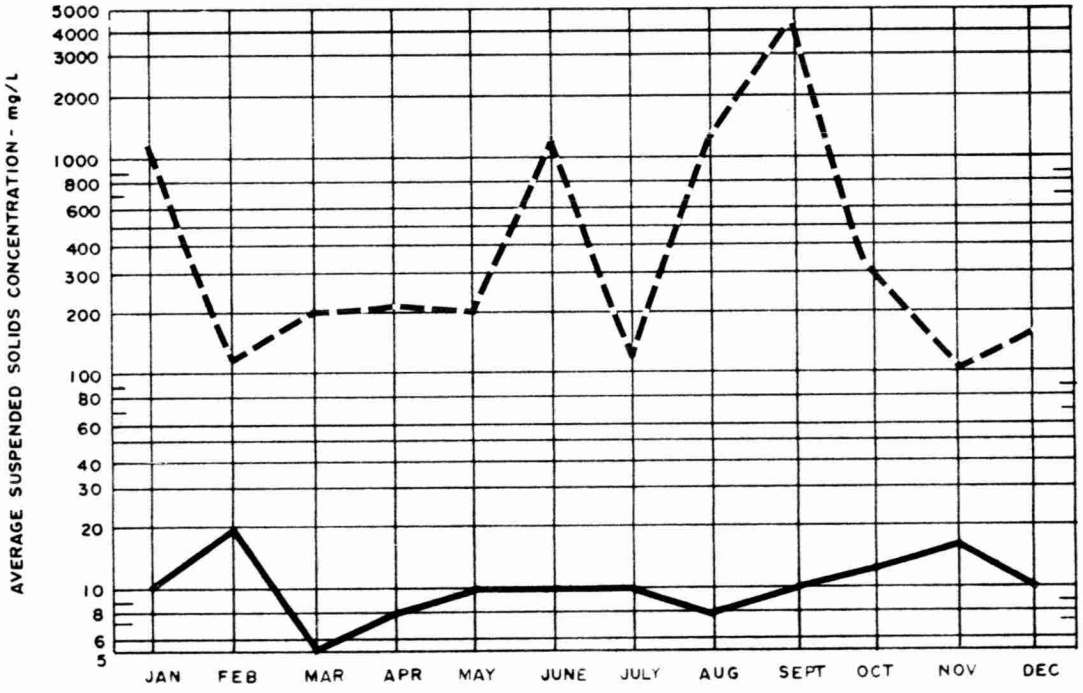


PLANT INFLUENT

PLANT EFFLUENT

SUSPENDED SOLIDS

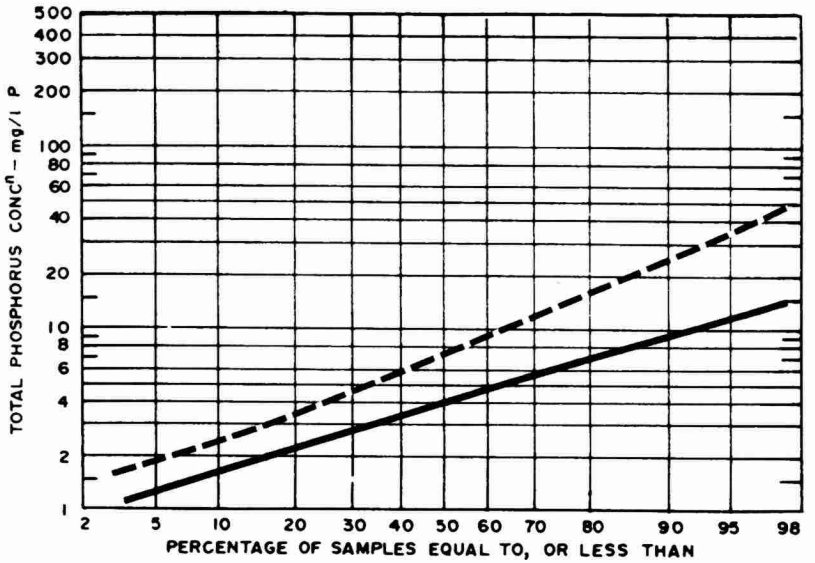


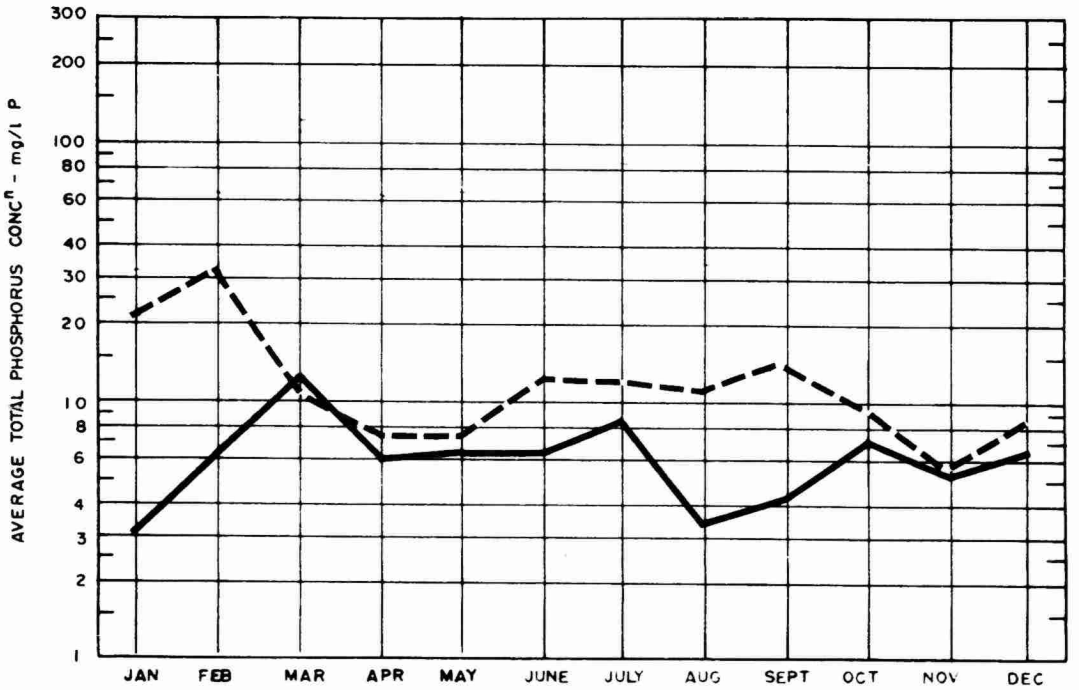


PLANT INFLUENT

PLANT EFFLUENT

PHOSPHORUS





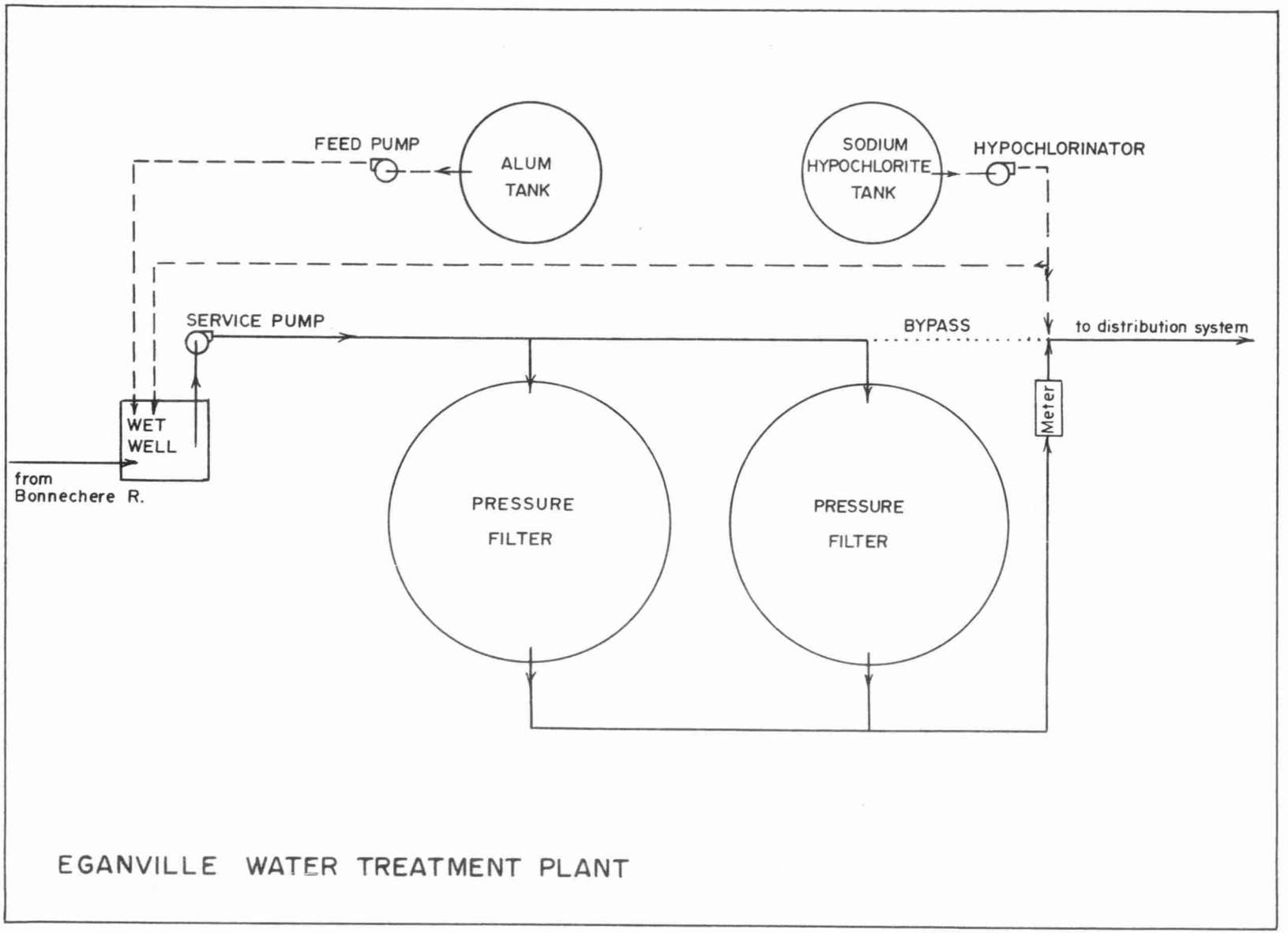
PLANT INFLUENT

PLANT EFFLUENT

TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl_2 USED pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day^{-1}	AIR USED $\frac{1000\ ft^3}{lb\ BOD}$	QUANTITY 10^3 gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	QUANTITY REMOVED 10^3 gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	AMOUNT HAULED cubic yards
JAN				5300						13			77
FEB				4560				5950			5550		
MAR				5050				4100		49	5880		291
APR		208	4.3	5350	.08			4850			7880		
MAY		228	5.1	6220	.03			9670		40	7630		237
JUNE		185	4.9	6630	1.01			8690		69	7780		410
JULY		162	5.1	6080	.04			7210		55	7640		326
AUG		162	5.5	4580	.34			7500		25	6080		148
SEPT	10	154	5.7	5200	.47			8050		58	6950		344
OCT		172	5.3	4140	.05			6300		51	6000		303
NOV	11	148	3.9	5250	.03			6130		33	5780		196
DEC	12	97	3.4	6900	.03			7170			6200		
TOTAL			–	–	–	–		–	–	393	–	–	2332
AVG.	cu. ft/mil gal	168	4.8	5440	.23			6880		33	6670		194

WATER SUPPLY SYSTEM



EGANVILLE WATER TREATMENT PLANT

DESIGN DATA

PROJECT NO. 6-0093-61

TREATMENT Coagulation and Filtration

FILTERS

Type: Pressure, sand.
Size: 84 inch dia

SOURCE

- Bonnechere River

DISTRIBUTION

6" and 8" dia pipe

PUMP

One Canada Pump 167 igpm @ 210' TDH

'72 Review

GENERAL - Water

This project consists of a water treatment plant employing coagulation, mixing, pressure filters, high lift pumping and a water distribution system.

During the past year, eight new water services were installed and several broken water mains were repaired. Leaking fire hydrants were also repaired.

The water distribution and backwash pumps were overhauled and repaired. Divers cleaned and rebuilt the cribbing around the inlet pipe at the water plant. The intake crib was discovered to have been in poor condition from this underwater inspection.

EXPENDITURES

The total operating cost for the water system was $10,319.00. The cost of treating and supplying water was 43 cents per thousand gallons.

FLOWS

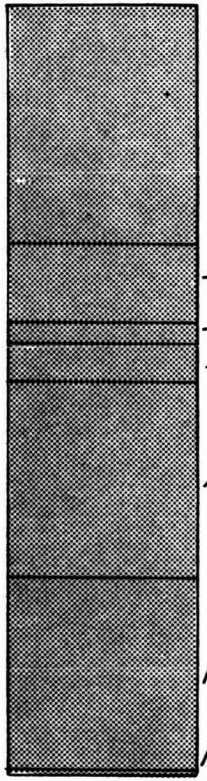
A total flow of 24,109,200 gallons was recorded at the water treatment plant in 1972. The average daily flow in 1972 was .066 million gallons.

CONCLUSIONS

Final plans and specifications have been prepared for the construction of an elevated tank. Once completed, it is expected that this extra storage will increase fire protection, reduce peak flows from the pumping station and simplify the maintenance and operation of the treatment facilities.

1972 COSTS

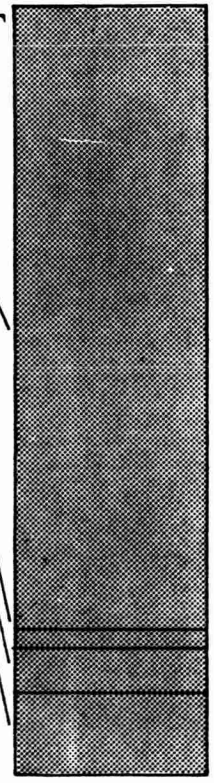
OPERATING COSTS



PAYROLL	31 %
FUEL	%
POWER	%
CHEMICALS	10 %
GENERAL SUPPLIES	2 %
EQUIPMENT	4 %
REPAIRS & MAINTENANCE	25 %
SUNDRY	26 %
WATER	%
TRAVEL	< 1 %

TOTAL ANNUAL COST

NET OPERATING	81 %
DEBT RETIREMENT	2 %
RESERVE	7 %
INTEREST	11 %



YEARLY OPERATING COSTS

YEAR	WATER TREATED in million gallons	TOTAL OPERATING COSTS	TREATMENT COSTS in cents per 1000 gallons
1972	24.17	$10,319.06	43 cents

PROJECT COSTS

6-0093-61

NET CAPITAL COST	$171,696.31
DEDUCT - Portion financed by MDLB (Final)	(110,602.00)
MUNICIPAL ADVANCES	40,824.19
Long Term Debt to MOE	$ 20,270.12
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1972	$ 4,165.31
Net Operating	$ 10,695.06
Debt Retirement	221.00
Reserve	662.69
Interest Charged	1,136.73
TOTAL	$ 12,715.48

RESERVE ACCOUNT

Balance @ January 1, 1972	$ 4,813.85
Deposited by Municipality	662.69
Interest Earned	325.48
	$ 5,802.02
Less Expenditures	755.00
Balance @ December 31, 1972	$ 5,047.02

PROJECT COSTS

6-0153-65

NET CAPITAL COST	$74,036.31
DEDUCT - Portion financed by MDLB (Final)	(49,644.64)
MUNICIPAL ADVANCES	(19,780.57)
Long Term Debt to MOE	$ 4,611.10
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1972	$ 781.50
Net Operating	$ -
Debt Retirement	49.00
Reserve	241.29
Interest Charged	258.58
TOTAL	$ 548.87

RESERVE ACCOUNT

Balance @ January 1, 1972	$ 2,084.71
Deposited by Municipality	241.29
Interest Earned	139.83
	$ 2,465.83
Less Expenditures	-
Balance @ December 31, 1972	$ 2,465.83

MONTHLY OPERATING COSTS

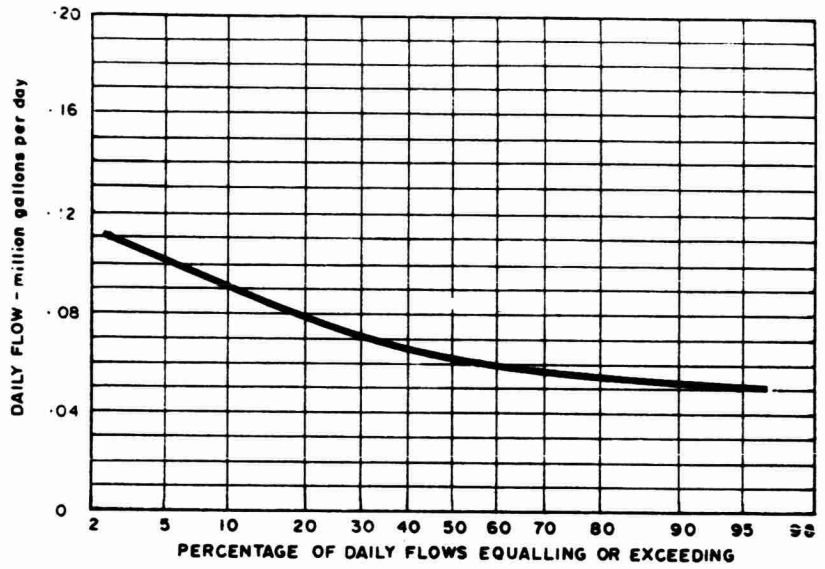
6-0093-61

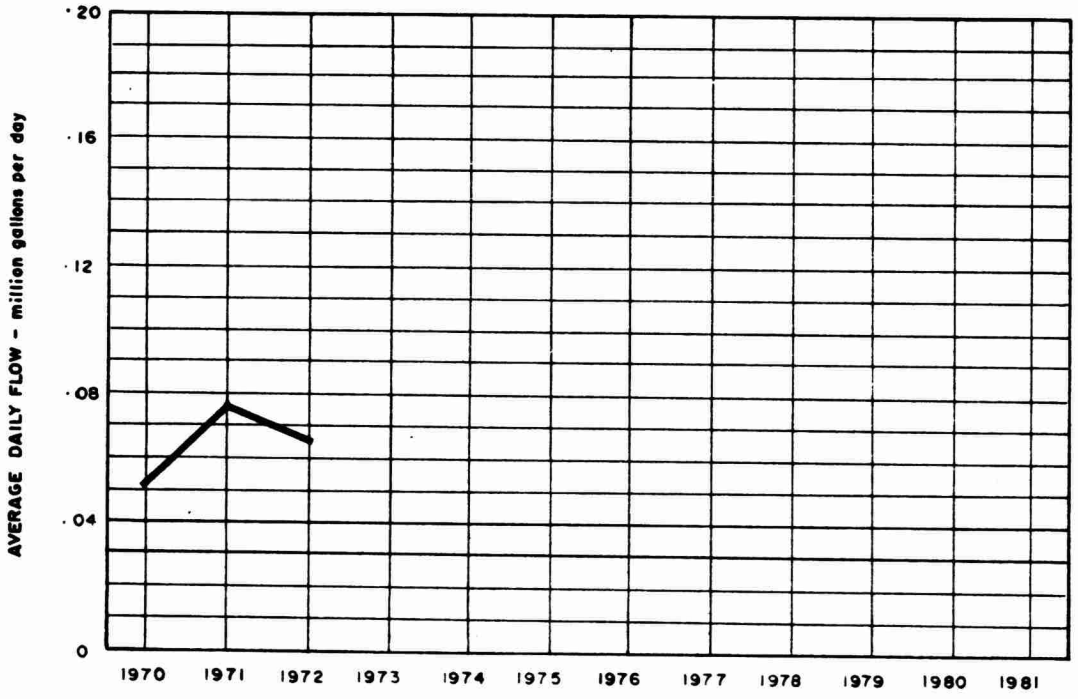
MONTH	TOTAL EXPENDITURE	REGULAR PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICALS	GENERAL SUPPLIES	EQUIPMENT	REPAIRS and MAINTENANCE	SUNDRY	TRAVEL
JAN											
FEB	350.94								6.61	344.33	
MAR	409.42					262.35	39.54		33.84	73.69	
APR	3336.31						6.03		528.05	2802.23	
MAY	91.55						10.00		77.76	3.79	
JUNE	(999.07)						15.78		100.50	(1115.35)	
JULY	522.32					252.45		28.88	240.99		
AUG	68.71						12.84		56.90	(1.03)	
SEPT	106.20					106.20					
OCT	286.36					67.00	19.89	23.47	176.00		
NOV	933.09					222.75			510.19	200.15	
DEC	5213.23	3200.00				169.87	129.92	376.63	893.23	405.25	38.33
TOTAL	10319.06	3200.00				1080.62	234.00	428.98	2624.07	2713.06	38.33

Brackets indicate credit.

PROCESS DATA

FLOWS





DESIGN CAPACITY 0·25

MONTH	FLOWS			ALUM		CHLORINATION			TEMPERATURE	
	TOTAL PLANT OUTPUT million gallons	AVERAGE DAILY FLOW million gallons	MAXIMUM DAY'S FLOW million gallons	AMOUNT USED pounds	DOSAGE mg/l	SODIUM HYPOCHLORITE USED gallons	DOSAGE mg/l	RESIDUAL IN PLANT EFFLUENT mg/l	AVERAGE °F	MAXIMUM °F
JAN	3.25	.104	.121	293	9.3	48	1.8	.4		
FEB	1.94	.067	.125	144	7.4	30	1.9	.4		
MAR	2.02	.065	.075	83	4.4	28	1.7	.4		
APR	2.00	.067	.077	220 est.	10.9	83	5.0	.5		
MAY	2.43	.079	.122	220 est.	9.0	86	4.3	.5		
JUNE	2.05	.068	.103	197	9.6	74	4.4	.4	59	66
JULY	1.90	.061	.086	295	15.6	92	5.8	.4	68	74
AUG	1.64	.053	.068	325	19.8	84	6.1	.5	64	69
SEPT	1.63	.054	.062	289	17.7	74	5.5	.5	59	69
OCT	1.80	.058	.076	277	15.4	66	4.4	.5	42	56
NOV	1.71	.057	.067	149	8.7	58	4.1	.5	33	38
DEC	1.80	.058	.073	124	6.9	50	3.3	.5	27	28
TOTAL	24.17			2616		775			50	
AVG.		.066	MAXIMUM .125	218	10.8		3.2	.5		MAXIMUM 74

CHLORINATION and DISINFECTION

MONTH	RAW WATER					PLANT EFFLUENT		DISTRIBUTION SYSTEM	
	NUMBER OF SAMPLES HAVING TOTAL COLIFORM ORGANISMS PER 100 ml OF					NUMBER OF SAMPLES TAKEN	NUMBER HAVING COLIFORM ORGANISMS	NUMBER OF SAMPLES TAKEN	NUMBER HAVING COLIFORM ORGANISMS
	0	1 - 3	4 - 32	33 - 320	> 320				
JAN	2			1		12			
FEB	5					19	1		
MAR	3		1			13			
APR	3					15			
MAY	6					24			
JUNE	3					12			
JULY	4					16			
AUG	5					20			
SEPT	4					14	2		
OCT	2					8			
NOV	3	1				16			
DEC	2	1				12			
TOTAL	42	2	1	1		181	3		
AVG.	1 (NOTE - Average shown is the GEOMETRIC MEAN)								

WATER QUALITY

PROPERTY	RAW WATER				TREATED WATER				DESIRABLE STANDARDS
	NUMBER OF SAMPLES	AVERAGE	MAXIMUM	MINIMUM	NUMBER OF SAMPLES	AVERAGE	MAXIMUM	MINIMUM	
HARDNESS in mg/l as $CaCO_3$	12	58	70	40					80 – 100
ALKALINITY in mg/l as $CaCO_3$	12	40	55	14					30 – 100
IRON in mg/l Fe	12	.10	.35	.05					Less than 0.3
CHLORIDE in mg/l Cl^-	12	6	10	2					Less than 250
pH in pH units	12	7.4	7.8	7.1					7.0 – 8.5